



From Climate to Economics:
Anticipating Impacts of Climate Change in California

Climate Change Overview: California Air Resources Board

Alan C. Lloyd, Ph.D
California Air Resources Board
June 9, 2004



ARB Climate Change Activities

- Partnerships
 - California Fuel Cell Partnership
 - California Stationary Fuel Cell Collaborative
 - California Hydrogen Highway Network
- AB 1493
 - Requirements
 - Highlights of draft staff proposal
 - Next steps



AB 1493 Requirements

- Adopt regulations by January 1, 2005
 - Maximum feasible reduction of greenhouse gases from new motor vehicles
 - CO₂, CH₄, N₂O, HFC
 - Economical to owner/operator
- Regulations apply to 2009 and later model years



Draft Staff Proposal

- Released for public comment
- Provides early overview of complete methodology
- Details subject to change
 - Work still underway
 - Public comment



Technology Evaluation

- Define best technology packages for each vehicle type
 - Near, mid and longer term availability
- Model Green House Gas reductions
 - Looking carefully at combined effect
- Estimate cost and lifecycle cost

Technology Evaluation

		Compared to 2009	
		Reduction	Cost
Near Term	PC and T1	-21.1%	\$328
	T2	-18.6%	\$363
Mid Term	PC and T1	-28.2%	\$1,047
	T2	-22.6%	\$1,210

- Reduced operating cost provides payback to vehicle owner:
 - Near term (most packages): 0 to 5 years
 - Mid term (most packages): 4 to 7 years



Fleet-Level Standard

- Translate vehicle-level results into standards applicable to manufacturer fleet
 - Performance-based
(will not require specific technologies)
 - “Bubble” all on-vehicle climate change pollutants and sources (CO₂ equiv. gram/mi.)
 - Consider differences in upstream emissions for alternative fuel vehicles



Fleet-Level Standard

- Two tier approach
 - One standard for PC and T1, another for T2
 - Set to be technically feasible for heaviest fleet
- Two steps
 - Near term (2009)
 - Mid term (2012)
- Phase in each step over three years



Fleetwide Emission Reductions (vs. 2002)

- “Static” reductions (no change in fleet)

Near Term	PC and T1	-20.7%
	T2	-22.4%
	Fleet	-21.5%
Mid Term	PC and T1	-29.2%
	T2	-26.7%
	Fleet	-28.0%

- Future fleet reductions will be smaller if current sales trends (>trucks) continue



Alternative Compliance

- Regulations must provide maximum flexibility, and allow alternative methods of compliance

But...

- Use of alternatives must not undercut the purpose of the bill, which is to improve vehicles



Alternative Compliance-- Draft Proposal

- Allow averaging, banking, trading, aggregation across pollutants
- Use emission credit trading criteria
- No increase in other emissions
- Must be sponsored by auto manufacturer
- Must involve 2009 and later Pavley vehicles, or alternative fuels used in such vehicles



Credit For Early Action

- Regulations must grant credit for reductions achieved prior to operative date
- Manufacturers will earn credit if below initial standard prior to operative date



Economic Analysis

- Potential impacts on state economy
 - Effect on job creation, business expansion, California business competitiveness
- Consumer response
 - Vehicle sales
 - Driving
- Preliminary analysis--no significant effects



Next Steps

- July Workshops on draft staff report
- August 6 Release final staff report
- Sept. 23 Board hearing